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Subject FW: Phosphate mining boosts radiation levels (re:
EPA/Superfund sites)

FYI. Randy

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Sent: Monday, November 05, 2007 6:22 AM

To: Skye, Susan A; Merchant, E Randy; Grimm, Lu S; Sekerke, Joe; Tull, Elizabeth D; Garrett, Connie;
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Cc: Lynn Wilder; Jennifer Freed; Carl Blair; Bob Safay; Benjamin Moore; Youlanda Outin; Shaun Crawford

Subject: Phosphate mining boosts radiation levels (re: EPA/Superfund sites)

DeSoto Sun-Herald, 11/05/07

Phosphate mining boosts radiation levels

By **GREG MARTIN**

Staff Writer

EPA toxic mine study remains incomplete

It's a well established fact that phosphate mining increases the level of radioactivity of the mined lands by as much as 20 times, according to officials with the Florida Department of Health.

What remains debatable, however, is how much the higher radiation levels increase risks to human health -- and whether those risks will someday necessitate remedial actions, said John Williamson, environmental administrator for the health department's Bureau of Radiation Control.

For the past several decades, the U.S. Environmental Protection Agency has kept 21 old, Central Florida phosphate mining and processing sites on a list of industrial sites that warrant evaluation to determine if they should get cleanups under the Superfund program.

However, the EPA to date has conducted an evaluation of only one of those sites, the 7,000-acre Tenoroc Mine, which was excavated between the 1960s and the late 1970s by Borden Chemical.

The company then donated the site to the state for a fish management and recreation area.

In 2001, a consultant for the EPA found "elevated levels" of both radionuclides and heavy metals in a number of soil, clay and water samples from the site.

Tetra Tech E.M., the consultant hired by the EPA to conduct the study, called for a more comprehensive site evaluation and a cleanup.



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However, the study has been sitting on a shelf at the EPA's headquarters in Atlanta ever since.

The EPA, which labeled the study a draft, never finalized it.

The study hasn't been finalized because the EPA is working to establish an "over-arching policy" that would set the criteria for further site evaluations and cleanups based on the relative levels of risk at all 21 of the phosphate sites, said Franklin Hill, district director of the EPA's Superfund program.

Such a policy is needed because the sites are so large, and yet few people live around them, so the risk appears to be minimal, he said.

The state has taken so long to complete the evaluations because it has higher priorities, he said.

Williamson acknowledged that such radionuclides as radium, which are brought to the surface by mining and reclamation practices, could, theoretically, wash into streams on reclaimed mine sites.

"If the water is used for drinking water, of course that's a human pathway," Williamson said.

However, he pointed out that the state has water quality standards that limit the amount of radioactivity allowed in drinking water.

"So, if they saw levels of radionuclides rising above the levels that are safe, people would no longer be able to use that water," he said. "That raises the question: What would you do if you lost that source of water?"

Some environmentalists have suggested the Charlotte County Commission should consider that question as it deliberates on a proposed litigation settlement agreement with the Mosaic Fertilizer mining company.

The so-called Phosphate Compact calls for Mosaic to take extra steps to protect the quality and mitigate impacts to the quantity of water flowing across its sites. The measures include a monitoring program and future reservoir site.

In exchange, the county would agree not to challenge permits or raise objections to Mosaic's mining activities for the next 30 years.

The company plans to mine at least another 100,000 acres in the lower half of the Peace River watershed in the next 30 years.

Sue Reske, chairwoman of the Charlotte Harbor Group of the Sierra Club, has warned the County Commission during public meetings that the Tenoroc study suggests similar contamination may be found on Mosaic's future mine sites.

Reske said she wants the EPA to complete its evaluation of the Tenoroc site so conclusions can be reached about the health risks on such reclaimed phosphate sites.

"If the EPA allows their draft site inspection report to continue to languish, it would become perhaps the most egregious case of negligence I've ever seen toward public health and safety," she said.

However, Mosaic points out that raising radiation levels even 20 times higher may not result in

a measurable increase in health risk.

"A picocurie is only one-trillionth of a curie," pointed out Dave Townsend, Mosaic spokesman. He was referring to one measure of radiation. "The risk depends on relativity."

Debra Waters, an environmental manager for Mosaic, cited a health-risk threshold recommended by the National Council on Radiation Protection and Measurements. The council has concluded that the health risk caused by a dose of radiation lower than 5 REM, which is a measurement of annual radiation exposure, is so low it can't be quantified.

In Florida, the natural background radiation produces an annual dose of .63 REM. For those living on top of reclaimed phosphate mines, the exposure is estimated to be about .68 REM. So, the risk, though slightly elevated, remains far below the council's recommended threshold. Waters said.

She also pointed out the background level of radiation in Florida is less than many other states. Also, at least one county in Florida, Marion, has higher natural background radiation levels than Central Florida's mining district, she pointed out.

"The conclusion, I would say, is that the variation in radiation on mined versus unmined lands results in radiation levels that are less than national radiation levels, and less than those in other parts of state, and are well below any levels at which health risks would be anticipated," Waters said.

In Florida's phosphate reserve, uranium and its decay daughters, such as radium and radon, are always found with the ore, said Williamson said.

His bureau has sampled mined and unmined sites for radiation in the phosphate region annually for the past 21 years, and the sampling always shows about the same results. Mined sites have from four to 20 times the amount of radium-226 near the surface as unmined sites, he said.

Asked whether such levels pose a health threat, Williamson replied, "There really isn't sufficient evidence either way."

The federal and state agencies have been consulting with each other as often as every two weeks recently to establish the policy for evaluating the 21 phosphate sites, said the EPA's Hill.

The consultations are coming 27 years after contamination at some of the 21 phosphates sites was first discovered, around 1980, according to records obtained through a past Freedom of Information Act request.

The reports show that, in most cases, it wasn't until the early 1990s that federal specialists conducted their first cursory inspections of the sites.

In most cases, the inspectors then called for expanded site evaluations on a "high-priority" basis. The reports cite at least some potential for radionuclides or other toxic materials to contaminate well water resources.

In the Tenoroc study, Tetra Tech noted that employees of the state's Tenoroc Fish Management Area are provided drinking water from a well on the site, and other wells located within four miles serve some 65,000 residents in Auburndale.

Borden had donated the site to the state in 1982. The Florida Fish and Wildlife Conservation

Commission has been working with other agencies for the past decade to reconnect the drainage of Tenoroc to Saddle Creek, a Peace River tributary.

Tetra Tech, which took more than two dozen samples of soil, clay and water from the Tenoroc site, reported finding "elevated levels" of some 14 radionuclides, many of them in excess of 20 times background levels, and about a dozen heavy metals, including arsenic, cadmium, lead and manganese.

Tetra Tech recommended "further remedial action," the 2001 report states.

But, the EPA has actually concluded the sites are low priorities, Hill said.

"In most cases, high priority sites are where we have human health impacts," Hill said. "These sites are, in most cases, uninhabited. No one is living on them."

Hill acknowledged it would be better for local governments if they knew now what health risks are associated with phosphate mines -- before they sign off on another 100,000 acres of mining.

"I would agree with you that the more information we can identify would put us in a better position to make decisions on future mining," he said.

However, most of the sites on the EPA's list were mined before the state established mandatory reclamation rules, Hill pointed out.

Mines reclaimed in later years may pose less of a threat because state reclamation standards have improved, he said.

Once the phosphate sites are evaluated, local governments could use that information in land-use planning, Hill said.

"There are controls that you can use to manage land uses to minimize any concerns," he said. "I do know that some counties are taking aggressive actions to try to minimize the risk."

Townsend pointed out that the state department of health has adopted a radon residential building code that applies to all home construction, not just for homes built on reclaimed mine sites.

"The fact is, radon is not a phosphate issue, it is a statewide issue regardless of where and whether phosphate mining has occurred," Townsend said.

Reske countered by pointing out a half-dozen studies conducted to determine the radiation exposures on mine sites.

One study of wildlife found that alligators and armadillos residing on mine sites showed no significant differences in radium concentrations in their tissues. But, hardshell turtles had seven times as much radium as those sampled from unmined habitat.

Reske also cites another study dating back to the 1980s by Heather Stockton and other researchers. The study found that male nonsmokers residing in the phosphate area of Central Florida had a twofold increase in lung cancer.

Yet, Dr. Brian Birky, a health physicist who directs health research at the Florida Institute of Phosphate Research, cautioned against reaching conclusions based on such studies.

He pointed out that Central Florida is naturally higher in radiation. And the fact that animals living in those areas wind up with higher radiation doses doesn't mean it's harming either them or people living offsite.

Spam

Not spam

Forget previous vote

Background — leads to slide on Criteria —

~~Individual Reports for Cellus Sites —~~

Secure Web Site —

11/11 — Don Christy —

"ASTER" on outline —

- Public Notice
- Public Mtg - Availability Sessions
- Desk Statement
- Briefing State officials
-

11/6

"limited scope"

Examples of out put —

Further discussion of authority — Add to paper —

May need to summarize other things considered as far as remedies — needs to be a stand alone.

May also need to verify what ATSDR said.

Call from Admin office — article —